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## EUROPEAN PATENT APPLICATION

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### ㉙ Improved toothbrush.

㉚ A toothbrush wherein the brushing bristles (3) are flanked, along the pair of elongated sides of bristle-carrying head (2) by small resilient rubber-like cylinders (4) preferably provided as an integral body with a resilient lining (5) coating the three free sides of the bristle-carrying head.

While the center bristles are provided for the routine tooth cleaning, the outer small resilient rubber-like cylinders perform a massaging action on the gums they come into engagement with.

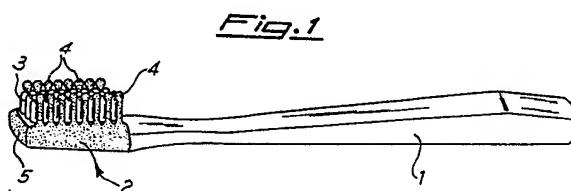


Fig. 1

**Description****IMPROVED TOOTHBRUSH**

This invention relates to an improved toothbrush, and in particular to a toothbrush adapted as well to perform a massaging action for the gums.

As it is known, the function of the so called toothbrushes comprises not only a simple cleaning of the teeth, but also providing an adequate massaging action to the adjacent gum area, in order to improve the capillary blood distribution, thereby strengthening the structure thereof.

Therefore, countless attempts have been made in order to reconcile the two requirements above, by varying either the shape, the size, the bristle angle relative to the support and/or handle, or by using differential hardness bristles, for instance by providing inner stiff bristles surrounded by more flexible outer bristles. However, in any case, the problem of gum massage has never been satisfactorily solved in that, if the bristles provided to come into contact mainly with the gums are too stiff, they can cause bruises on said gums, and therefore they can induce bleeding or, in the extreme, they can make the gums to move back as a consequence of the traumatic action; on the other hand, if more flexible bristles are provided for the gum massage, said bristles fail very quickly to perform their action in that, under the effect of the pressure manually applied to the handle, they tend to bend, whereby they become unable to perform their brushing action any longer.

Taking into account the above drawbacks of the commercially available toothbrushes, there has been contrived and provided the toothbrush according to this invention. Said toothbrush includes a brushing head wherein the outer bristles are replaced by small resilient cylinders having round ends and, in addition, the stiff body of said brushing head may be provided, at the outer region thereof, with a resilient lining layer adapted to dampen impacts of the toothbrush both against the teeth and against the gums.

This invention is described more particularly in the following, for sake of clarity, referring to the attached drawings, wherein:

Figure 1 shows a perspective view of the toothbrush of this invention;

Figure 2 shows an elevational side view of the toothbrush of Figure 1; and

Figure 3 shows a top plan view of the toothbrush of Figure 1.

As it is shown in the Figures, the toothbrush according to this invention in anatomical handle 1 connected to brushing head 2 provided with center brushing bristles 3 flanked on the outer side, along the pair of elongated sides of brushing head 3, by small resilient cylinders 4, having round ends. Said outer small resilient cylinders 4 may be incorporated at the bottom end thereof within the rigid body of brushing head 2 or else, as it is shown in the drawing, they may be integral with a resilient lining member 5 which surrounds said brushing head 2 on the three free sides thereof.

The above arrangement makes it possible to

provide an effective toothbrushing action by means of bristles 3, and a pleasant gum massaging action provided by small resilient cylinders 4, while the outer resilient lining 5 prevents rigid body 2 from coming directly into engagement with the teeth or with the gums, whereby traumatic impacts are spared to both.

Usage of the inventive toothbrush enables one to perform both the routine tooth cleaning and associated plaque removal, and an effective pleasant massaging function on the gums, owing to the resilient behaviour of the small peripheral cylinders comprised of any suitable rubber material, like for instance natural rubber or artificial elastomers.

In order to ensure that a gum massaging action is performed by small peripheral resilient cylinders 4, their round ends project slightly above the level of the center bristles, so that while the toothbrush is being used on the dental arch, the small resilient cylinders are made to bend outwards whereby they reach the proximal limit of the gums involved.

While this invention has been described based on a preferred embodiment thereof, variations and/or modifications may be made by those skilled in this art, without exceeding the protective scope of the invention.

**Claims**

1. A toothbrush characterized in that bristles (3) provided for cleaning the teeth are flanked, along the pair of elongated sides of bristle-carrying head (2), by two arrays of small resilient cylinders (4), provided for massaging the gums.

2. The toothbrush of Claim 1 further characterized in that bristle-carrying head (2) is provided, on the three free sides thereof, with a resilient material lining (5) made integral with said small resilient cylinders (4).

3. The toothbrush of Claim 1 or 2, characterized in that said small side resilient cylinders (4) are provided with rounded bulging heads at the free ends thereof, protruding above the level of the center brushing bristles (3).

4. The toothbrush substantially as described and shown in the attached drawings.

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Fig. 1

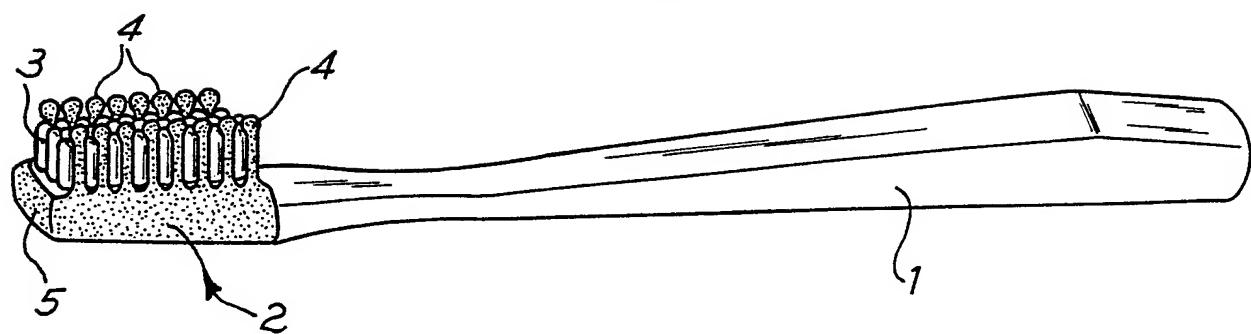


Fig. 2

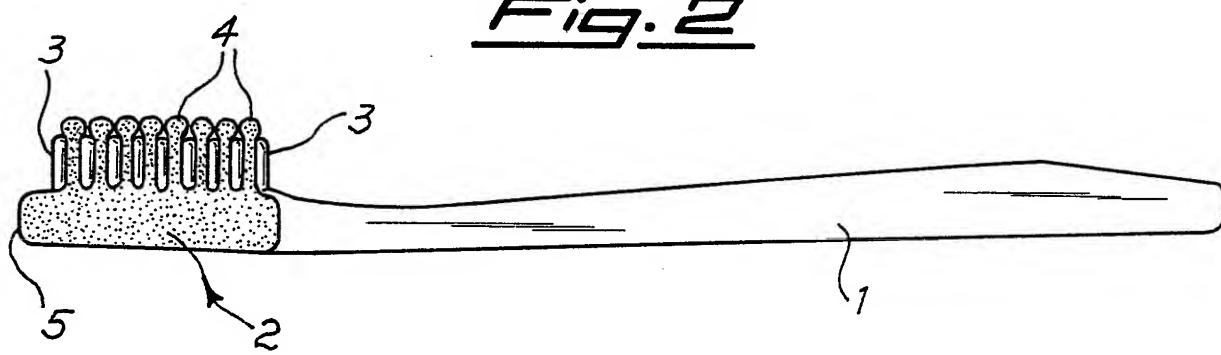
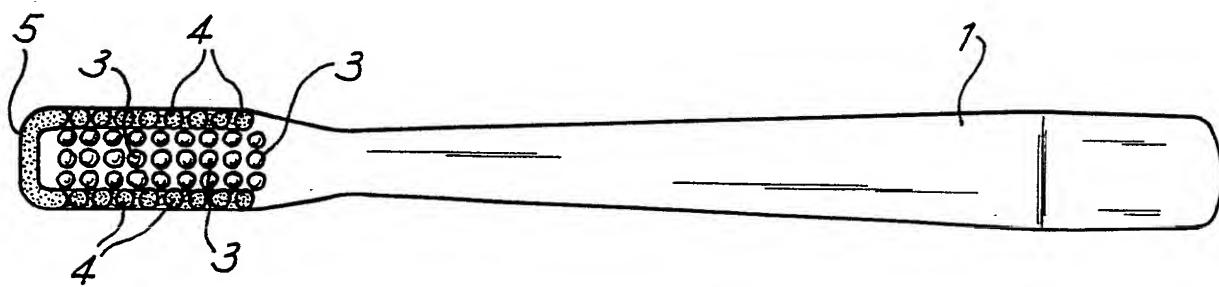


Fig. 3





EP 89 83 0402

| DOCUMENTS CONSIDERED TO BE RELEVANT  |   |   | CLASSIFICATION OF THE APPLICATION (Int. Cl.5 ) |
|--|---|---|--|
| Category   | Citation of document with indication, where appropriate, of relevant passages         | Relevant to claim   |  |
| X  | FR-A-2440171 (DOLINSKY)<br>* page 1, line 20 - page 5, line 8; figures 1-6<br>*       | 1, 3  | A46B9/06<br>A46B17/08                          |
| Y  | ---   | 2   |  |
| Y  | FR-A-561692 (LECHAT)<br>* claims 1-4; figures 1-6 *                                   | 2   |  |
| A  | DE-U-8715893 (LINK)<br>* claim 1; figures 1-6 *                                       | 1, 2  |  |
| A  | FR-A-2511586 (LACAMBRE ET AL)<br>* page 1, line 17 - page 2, line 8; figures 1-6<br>* | 1, 3  |  |
|  | -----   |   |  |
|  |   |   | TECHNICAL FIELDS SEARCHED (Int. Cl.5 )         |
|  |   |   | A46B   |
| <p>The present search report has been drawn up for all claims</p>  |   |   |  |
| Place of search  | Date of completion of the search  | Examiner  |  |
| THE HAGUE  | 12 DECEMBER 1989  | ERNST R.T.  |  |
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